AIGNEP

Actuators Series

Cartidge Cylinders
Ø 6-16 mm

CA - CAF Series
Pg. 20.3

Mini Cylinders ISO 6432
Ø 8-25 mm

Mini Series
Pg. 20.5

Mini Stainless Steel Cylinders
ISO 6432 Ø 16-25 mm

Mini Stainless Steel Series
Pg. 20.13

Limited Space
Ø 32-63 mm

A95 Series
Pg. 20.16

Compact Cylinders
Ø 12-100 mm

Q Series
Pg. 20.23

ISO 15552 Cylinders
Ø 32-125 mm

L Series
Pg. 20.36

ISO 6431 Cylinders
Ø 160-320 mm

E Series
Pg. 20.45

Stainless Steel ISO 15552 Cylinders
Ø 32-125 mm

V Series
Pg. 20.47

Twin Rod Cylinders
Ø 32-100 mm

NHA Series
Pg. 20.50

Compact Cylinders ISO 21287
Ø 20-100 mm

W Series
Pg. 20.54

Cylinder Accessories
ISO 6431 - ISO 15552 - ISO 21287

Accessories
Pg. 20.62

Magnetic Poition Sensing Switches

Sensor
Pg. 20.72

Rodless Actuators Series

Rodless Cylinders Standard Version

S1 Series
Pg. 20.78

Rodless Cylinder with Integrated Guides in Tecnopolymer

S5 Series
Pg. 20.87

Click here to view the Actuators Series on our Website

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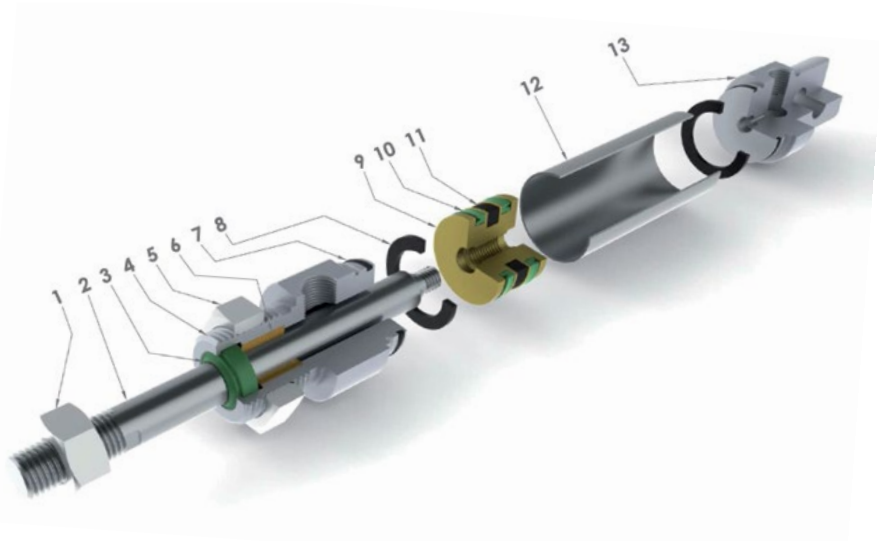
PNEUMATIC ACTUATORS

Actuators Series

P.A.

MINI CYLINDERS - ISO 6432

TECHNICAL CHARACTERISTICS



Component Parts and Materials

1 Zinc plated steel rod jam nut
2 **303** Stainless steel piston rod
3 Polyurethane rod seal
4 Anodized aluminum end cap
5 Zinc plated mounting nut
6 Sintered bronze rod bearing
7 NBR o-ring seals
8 Neoprene bumper
9 Brass piston
10 Polyurethane piston seal
11 Bonded ferrite magnet
12 **304** Stainless steel body
13 Anodized aluminum end cap

Reference Standard

1907/2006 REACH
2011/65/CE RoHS
PED 2014/68/UE
SILICON FREE
ATEX 2014/34/UE

Pressures

1 bar (0.1 MPa) / 14.5 psi
10 bar (1 MPa) / 145 psi

Temperatures

0 °C / 32 °F (-20 °C / -4 °F with dry air)
+ 80 °C / 176 °F

Media

Filtered and lubricated or non-lubricated compressed air

Functions

Single acting magnetic or non-magnetic. Double acting single or double end rod, magnetic or non-magnetic, cushioned or non-cushioned.

Bores

8 - 10 - 12 - 16 - 20 - 25 mm

Standard Strokes

from 10 to 320 mm

FORCES, SPRING LOADS AND AIR CONSUMPTION

Extend and Retract Forces

Cylinder	Piston rod	Piston Area	Operating pressure									
Ø	Ø	mm²	bar									
			1	2	3	4	5	6	7	8	9	10
			Output force N									
8	4	Extend = 50.2	5	10	15	20	25	30	35	40	45	50
		Retract = 37.7	3	6	9	12	15	18	21	24	27	30
10	4	Extend = 78.5	7	14	21	28	35	42	49	56	63	70
		Retract = 66	6	12	18	24	30	36	42	48	54	60
12	6	Extend = 113	10	20	30	40	50	60	70	80	90	100
		Retract = 85	7.5	15	22	30	37	45	52	60	68	75
16	6	Extend = 200	18	36	54	72	90	108	126	144	162	180
		Retract = 173	16	32	48	64	80	96	112	128	144	160
20	8	Extend = 314	28	56	84	112	140	168	196	224	252	280
		Retract = 264	24	48	72	96	120	144	168	192	216	240
25	10	Extend = 490	44	88	132	176	220	264	308	352	396	440
		Retract = 412	36	72	108	144	180	216	252	288	324	360

Spring Loads

Cylinder	Spring load	Stroke (mm)		
Ø		10	25	50
		Output force N		
8	Load of spring at rest	4.1	3.5	2.6
	Load of compressed spring	4.5	4.5	4.5
10	Load of spring at rest	4.1	3.5	2.6
	Load of compressed spring	4.5	4.5	4.5
12	Load of spring at rest	5.5	4.8	3.5
	Load of compressed spring	6	6	6
16	Load of spring at rest	16.5	13.7	9
	Load of compressed spring	18.3	18.3	18.3
20	Load of spring at rest	19	15.5	9.5
	Load of compressed spring	21.5	21.5	21.5
25	Load of spring at rest	27	24	13.5
	Load of compressed spring	29	29	29

Air Consumption

Cylinder	Piston Rod	Piston Area	Operating pressure									
Ø	Ø	mm²	bar									
			1	2	3	4	5	6	7	8	9	10
			Air consuption for each 10 mm of stroke Nl									
8	4	Extend = 50.2	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.005	0.005	0.006
		Retract = 37.7	0.001	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.004	0.004
10	4	Extend = 78.5	0.002	0.002	0.003	0.004	0.005	0.005	0.006	0.007	0.008	0.009
		Retract = 66	0.001	0.002	0.003	0.003	0.004	0.005	0.005	0.006	0.007	0.007
12	6	Extend = 113	0.002	0.003	0.005	0.006	0.007	0.008	0.009	0.010	0.011	0.012
		Retract = 85	0.002	0.003	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.009
16	6	Extend = 200	0.004	0.006	0.008	0.010	0.012	0.014	0.016	0.018	0.020	0.022
		Retract = 173	0.003	0.005	0.007	0.009	0.010	0.012	0.014	0.016	0.017	0.019
20	8	Extend = 314	0.006	0.009	0.013	0.016	0.019	0.022	0.025	0.028	0.031	0.035
		Retract = 264	0.005	0.008	0.011	0.013	0.016	0.018	0.021	0.024	0.026	0.029
25	10	Extend = 490	0.010	0.015	0.020	0.025	0.029	0.034	0.039	0.044	0.049	0.054
		Retract = 412	0.008	0.012	0.016	0.021	0.025	0.029	0.033	0.037	0.041	0.045

Series	Execution	Ø (mm)	Stroke (mm)	Special version
M F		0 0 8	0 0 2 5	V S

- ▲ MB Single acting - magnetic
- ■ MD Single acting - magnetic Spring extend
- ● MF Double acting - magnetic
- ○ MFN Double acting - magnetic - head cut port at 90°
- ○ MFX Double acting - magnetic - head cut port on axis
- ♦ MH Double acting - cushioned - magnetic
- ○ MJ Double acting - magnetic with double rod end
- ♦ ML Double acting - cushioned - magnetic with double rod end
- ○ MFA Double acting - magnetic hexagonal anti-rotation

- = Male rod
- L Piston Rod Lock

008 010 012 016 020 025

0010 0025 0050 0080 0100 0125 0150 0160 0200 0250 0320

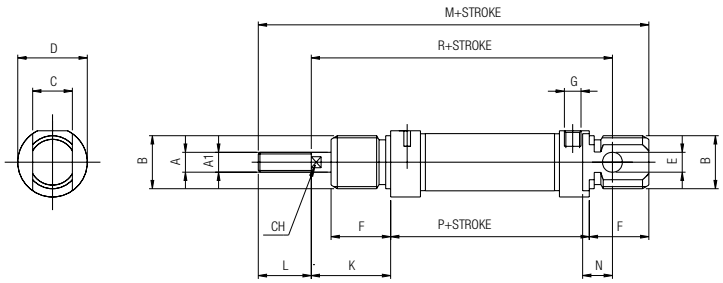
Intermediate or longer strokes are available upon request.

- VS Rod Seals in FKM
- V Seals in FKM

Ø (mm)	Stroke (mm) 10	25	50	80	100	125	160	200	250	320
8	▲●	▲●	▲●	●	●	●				
10	▲●	▲●	▲●	●	●	●				
12	▲●	▲●	▲●	●	●	●	●	●	●	
16	▲■●○	▲■●♦○	▲■●♦○	●♦○	●♦○	●♦○	●♦○	●♦○	●♦○	
20	▲■●○	▲■●♦○	▲■●♦○	●♦○	●♦○	●♦○	●♦○	●♦○	●♦○	●♦○
25	▲■●○	▲■●♦○	▲■●♦○	●♦○	●♦○	●♦○	●♦○	●♦○	●♦○	●♦○

MB

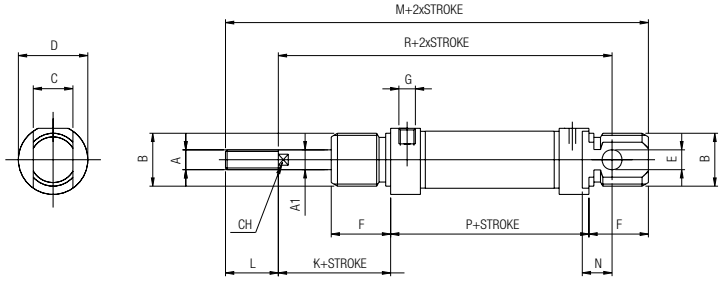
SINGLE ACTING - MAGNETIC



Ø	A	A1	B	C	D	E	F	G	K	L	M	N	P	R	CH
8	M4	4	M12x1.25	8	16	4	12	M5	16	12	86	6	46	64	-
10	M4	4	M12x1.25	8	16	4	12	M5	16	12	86	6	46	64	-
12	M6	6	M16x1.5	12	19	6	18	M5	22	16	104	9	48	75	5
16	M6	6	M16x1.5	12	19	6	18	M5	22	16	109	9	53	82	5
20	M8	8	M22x1.5	16	27	8	20	1/8G	24	20	131	12	67	95	7
25	M10x1.25	10	M22x1.5	16	30	8	22	1/8G	28	22	140	12	68	104	9

MD

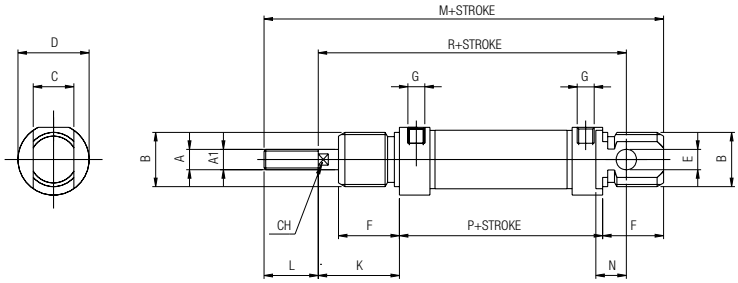
SINGLE ACTING - MAGNETIC - SPRING EXTEND



Ø	A	A1	B	C	D	E	F	G	K	L	M	N	P	R	CH
16	M6	6	M16x1.5	12	19	6	18	M5	22	16	134.5	9	78.5	107.5	5
20	M8	8	M22x1.5	16	27	8	20	1/8G	24	20	154	12	90	118	7
25	M10x1.25	10	M22x1.5	16	30	8	22	1/8G	28	22	166	12	94	130	9

MF

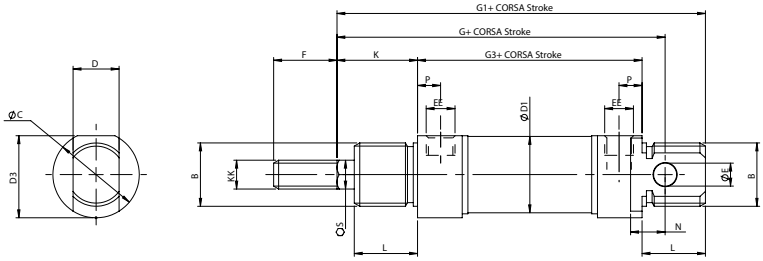
DOUBLE ACTING - MAGNETIC



Ø	A	A1	B	C	D	E	F	G	K	L	M	N	P	R	CH
8	M4	4	M12x1.25	8	16	4	12	M5	16	12	86	6	46	64	-
10	M4	4	M12x1.25	8	16	4	12	M5	16	12	86	6	46	64	-
12	M6	6	M16x1.5	12	19	6	18	M5	22	16	104	9	48	75	5
16	M6	6	M16x1.5	12	19	6	18	M5	22	16	109	9	53	82	5
20	M8	8	M22x1.5	16	27	8	20	1/8G	24	20	131	12	67	95	7
25	M10x1.25	10	M22x1.5	16	30	8	22	1/8G	28	22	140	12	68	104	9

MFA

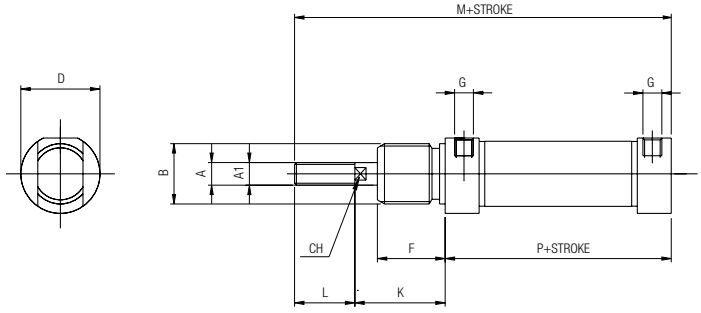
DOUBLE ACTING MAGNETIC HEXAGONAL ANTI-ROTATION



Ø	B	⬡S	ØC	D	ØD1	D3	ØE	EE	F	G	G1	G3	K	KK	L	N	P
16	M6x1.5	6	19	12	17.27	18	6	M5	16	82	93	53	22	M6x1	18	9	4.5
20	M22x1.5	8	27	16	21.27	25.5	8	1/8"G	20	95	111	67	24	M8x1.25	20	12	8
25	M22x1.5	10	30	16	26.5	28.5	8	1/8"G	22	104	118	68	28	M10x1.25	22	12	8

MFN

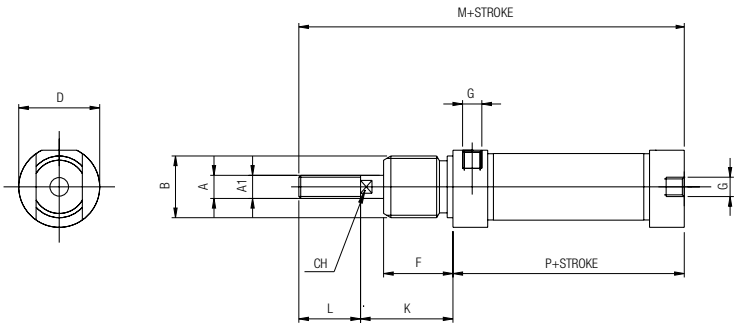
DOUBLE ACTING - MAGNETIC - HEAD CUT, PORT AT 90°



Ø	A	A1	B	D	G	K	L	M	P	CH	F
16	M6	6	M16x1.5	21	M5	22	16	91.5	53	5	18
20	M8	8	M22x1.5	27	1/8G	24	20	111.5	67	7	2
25	M10x1.25	10	M22x1.5	30	1/8G	28	22	118.5	68	9	22

MFX

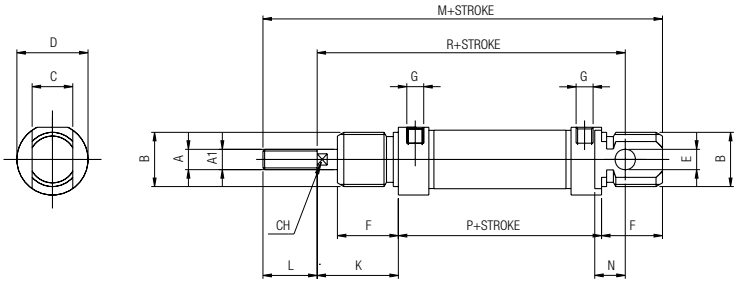
DOUBLE ACTING - MAGNETIC - HEAD CUT, PORT ON AXIS



Ø	A	A1	B	D	G	K	L	M	P	CH	F
16	M6	6	M16x1.5	21	M5	22	16	91.5	53	5	18
20	M8	8	M22x1.5	27	1/8G	24	20	111.5	67	7	2
25	M10x1.25	10	M22x1.5	30	1/8G	28	22	118.5	68	9	22

MH

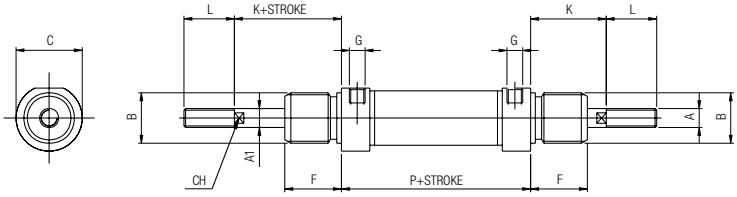
DOUBLE ACTING - CUSHIONED - MAGNETIC



Ø	A	A1	B	C	D	E	F	G	K	L	M	N	P	R	CH
16	M6	6	M16x1.5	12	21	6	18	M5	22	16	109	9	53	82	25
20	M8	8	M22x1.5	16	27	8	20	1/8G	24	20	131	12	67	95	7
25	M10x1.25	10	M22x1.5	16	30	8	22	1/8G	28	22	140	12	68	104	9

MJ

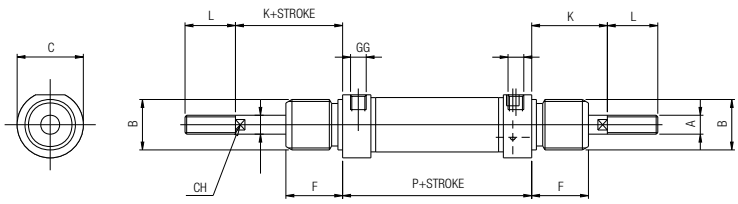
DOUBLE ACTING - MAGNETIC WITH DOUBLE ROD END



Ø	A	A1	B	C	F	G	K	L	P	CH
16	M6	6	M16x1.5	19	18	M5	22	16	53	5
20	M8	8	M22x1.5	27	20	1/8G	24	20	67	7
25	M10x1.25	10	M22x1.5	30	22	1/8G	28	22	68	9

ML

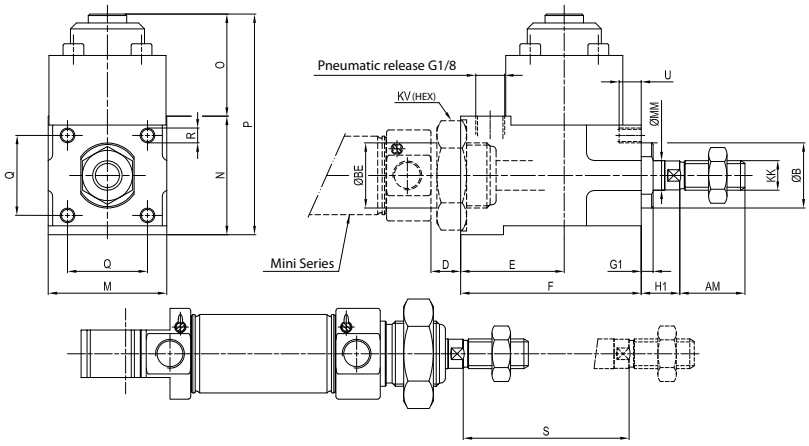
DOUBLE ACTING - CUSHIONED - MAGNETIC WITH DOUBLE ROD END



Ø	A	A1	B	C	F	G	K	L	P	CH
16	M6	6	M16x1.5	21	18	M5	22	16	53	5
20	M8	8	M22x1.5	27	20	1/8G	24	20	67	7
25	M10x1.25	10	M22x1.5	30	22	1/8G	28	22	68	9

MHL

PISTON ROD LOCK

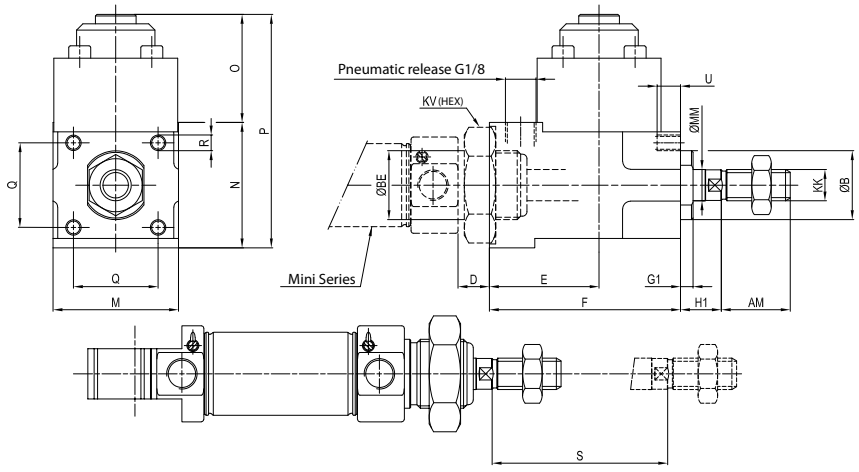


Ø	AM	B	BE	D	E	F	G1	H1	KK	KV	M	MM	N	O	P	Q	R	S	U
16	16	16	M16x1.5	10	35	61	1.5	7	M6x1	24	40	6	40	34.5	74.5	27	M5	55	7.5
20	20	22	M22x1.5	10	35	61	4	9	M8x1.25	32	40	8	40	34.5	74.5	27	M5	55	7.5
25	22	22	M22x1.5	10	35	61	4	13	M10x1.25	32	40	10	40	34.5	74.5	27	M5	55	7.5

ISO 6432 Mounting Accessories

UL1N

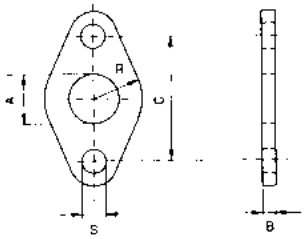
PISTON ROD LOCK



Code	Ø	AM	B	BE	D	E	F	G1	H1	KK	KV	M	MM	N	O	P	Q	R	S	U
UL1N 016 06	16	16	16	M16 X 1.5	10	35	61	1.5	7	M6 X 1	24	40	6	40	34.5	74.5	27	M5	55	7.5
UL1N 020 08	20	20	22	M22 X 1.5	10	35	61	4	9	M8 X 1.25	32	40	8	40	34.5	74.5	27	M5	55	7.5
UL1N 025 10	25	22	22	M22 X 1.5	10	35	61	4	13	M10 X 1.25	32	40	10	40	34.5	74.5	27	M5	55	7.5

MFL

FLANGE

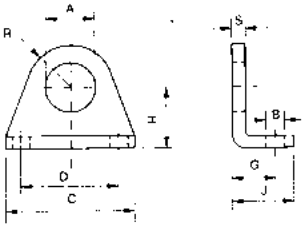


MATERIAL: Steel

Code	Ø	A	B	C	R	S
MFL 008	8-10	12	3	30	9	4.5
MFL 012	12-16	16	4	40	13	5.5
MFL 020	20-25	22	5	50	19	6.6

MPD

FOOT

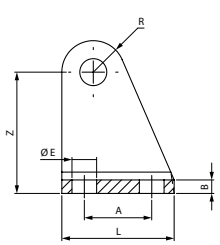


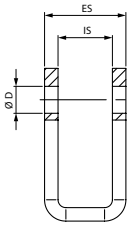
MATERIAL: Steel

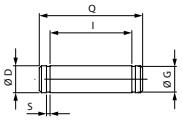
Code	Ø	A	B	C	D	G	H	J	R	S
MPD 008	8-10	12	4.5	35	25	11	16	16	10	3
MPD 012	12-16	16	5.5	42	32	14	20	20	13.5	4
MPD 020	20-25	22	6.6	54	40	17	25	25	18	5

MCC

CLEVIS BRACKET WITH PIN







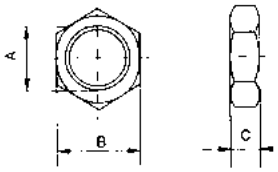
MATERIAL: Steel

Code	Ø	A	B	R	L	Z	IS	ES	S	I	Q	ØE	ØD	ØG
MCC 008	8-10	12.5	2.5	5	22	24	8.1	13	0.8	14	18	4.5	4	2.3
MCC 012	12-16	15	3	7	25	27	12	18	0.8	19	24	5.5	6	4
MCC 020	20-25	20	4	10	32	30	16	24	0.9	25	30	6.5	8	7

DA

MOUNTING NUT

ROD JAM NUT



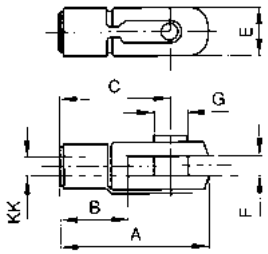
Code	A	B	C
0DA00 00 5I D5 ZI	M12x1.25	19	7
0DA00 00 51 E3 ZI	M16x1.5	22	6
0DA00 00 51 F6 ZI	M22x1.5	27	8

MATERIAL: Steel

Code	A	B	C
0DA00 00 51 B1 ZI	M4	7	3.2
0DA00 00 51 B8 ZI	M6	10	5
0DA00 00 51 C3 ZI	M8x1.25	13	6.5
0DA00 00 51 C9 ZI	M10x1.25	17	8

FC

ROD CLEVIS WITH LOCKABLE PIN

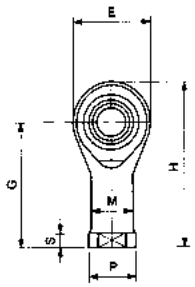


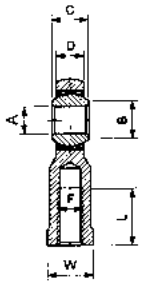
MATERIAL: Steel

Code	KK	A	B	C	E	F	G
FC 008	M4	21	8	16	8	4	4
FC 012	M6	31	12	24	12	6	6
FC 020	M8	42	16	32	16	8	8
FC 025	M10x1.25	52	20	40	20	10	10

TF

SELF-LUBRICATING SPHERICAL ROD EYE





MATERIAL: Steel

Code	F	A	B	C	Ø Sphere	D	E	G	H	L	M	P	S	W	Radial load Dynamic	Radial load Static	Weight
		H7	0	0 - 0.13		± 0.13	± 0.5	± 0.5		± 0.7	± 0.7	± 0.5	+ 0.2 - 0.7	± 0.25	kg	kg	g
TF 008	M4x0.7	5	7.7	8	11.11	6	18	27	36	10	9	11	4	9	-	-	-
TF 012	M6x1	6	8.9	9	12.7	6.75	20	30	40	9	10	13	5	11	470	1.100	19
TF 020	M8x1.25	8	10.4	12	15.88	9	24	36	48	12	12.5	16	5	14	780	1.900	36
TF 025	M10x1.25	10	12.9	14	19.05	10.5	28	43	57	15	15	19	6.5	17	1.200	3.100	88